What is claimed is:

1. A vision system, comprising:

a pixel array having an array of pixels, said array of pixels configured to receive light signals from an image having at least one tracking target;

at least one multi-resolution window operation circuit configured to process said image, each of said at least one multi-resolution window operation circuit operating to process each of said at least one tracking target within a particular multi-resolution window; and

a pixel averaging circuit configured to sample and average pixels within said particular multi-resolution window.

2. The system of claim 1, further comprising:

a target detection circuit configured to receive and process said image such that said each of said at least one tracking target is assigned to said particular multi-resolution window.

3. The system of claim 1, wherein said multi-resolution window has a size between 1x1 and 32x32 pixels.

4. The system of claim 1, wherein said pixel averaging circuit includes a plurality of column-parallel capacitors.

5. The system of claim 1, further comprising:

at least one output analog signal chain, each of said at least one output analog signal chain configured to output signal from said particular multi-resolution window.

6. The system of claim 5, further comprising:

a plurality of latches, each latch configured to hold definition values of said particular multi-resolution window.

7. The system of claim 1, wherein each of said array pixels includes a poly-silicon gate biased in deep-depletion.

8. The system of claim 1, wherein said pixel averaging circuit includes a super-pixel configuration element that operates to sequentially average the pixels within a super-pixel, where said super-pixel is a group of pixels that is at least 2x2 pixels in size.

9. The system of claim 8, wherein each of said at least one multi-resolution window operation circuit includes:

a super-pixel average address generation circuit configured to generate addresses of pixels within said super-pixel;

a mask generation circuit operating to provide a mask pattern for averaging pixels;

a switch network configured to input super-pixel averaging address;

a super-pixel average address and row dump address generation block operating provide average address and row dump address to said pixel averaging circuit; and

a capacitor bank control signal generation block configured to generate control signal for said pixel averaging circuit

10. The system of claim 9, wherein said switch network includes *32xn* switches, where *n* is a total number of columns.

11. The system of claim 10, wherein said switch network includes a diagonal control connection to ensure that averaging bit pattern is applied column-wise.

12. The system of claim 1, further comprising:

row and column control circuits operating to appropriately arrange said light signal received by said pixel array.

13. The system of claim 10, wherein said column control circuit further includes shift registers to shift and align each column of said pixel array to an actual starting address within said particular multi-resolution window.

14. A method for searching and tracking targets, comprising:

receiving light signals from an image having at least one tracking target;

detecting and separating said at least one tracking target into at least one region of interest;

grouping each of said at least one region of interest into a plurality of blocks; and

first averaging pixels within each of said plurality of blocks.

15. The method of claim 14, where said first averaging includes sequentially averaging the pixels within a super-pixel, where said super-pixel is a group of pixels that is at least 2x2 pixels in size.

16. The method of claim 14, wherein said first averaging is carried out in a passive capacitor array organized in column-parallel fashion.

17. The method of claim 14, wherein said first averaging includes block-averaging, said block-averaging including:

second averaging of a given row of pixel values;

storing an averaged value;

repeating said second averaging and storing for all rows, said repeating generating a plurality of row averages; and

computing an average of said plurality of row averages.

18. The method of claim 17, wherein said computing includes switching sample and hold capacitor in each column.